

10/554272  
JC20 Rec'd PCT/PTO 24 OCT 2005

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**AS INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY**

International Application No. : PCT/US2004/012110  
International Filing Date : 20 April 2004 (20.04.2004)  
Earliest Priority Date : 23 April 2003 (23.04.2003)  
Applicant(s) : L-3 COMMUNICATIONS SECURITY AND  
DETECTION SYSTEMS CORPORATION  
Title : X-RAY IMAGING TECHNIQUE

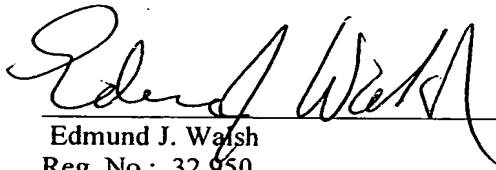
Mail Stop PCT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Transmitted herewith for filing a Demand for International Preliminary Examination,  
**Amendments under Article 34** and Fee Calculation Sheet with Deposit Account  
Authorization.

Please charge the preliminary examination fee and handling fee, in the amount of \$773.00  
deficiency, or credit any overpayment in the total fees, to the account of Wolf, Greenfield &  
Sacks, P.C., Deposit Account No. 23/2825.

If the enclosed papers are considered incomplete, the Mail Room and/or the Application  
Branch is respectfully requested to contact the undersigned collect at (617) 646-8000, Boston,  
Massachusetts.

Respectfully submitted,



Edmund J. Walsh  
Reg. No.: 32,950  
WOLF, GREENFIELD & SACKS, P.C.  
600 Atlantic Avenue  
Boston, Massachusetts 02210  
United States of America  
Telephone: (617) 646-8000  
Facsimile: (617) 646-8648

DOCKET NO.: L0632.70016  
DATE: 9 May 2005  
x 9/5/05  
Express Mail Label No. EL960723102US

The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of the Authority may be indicated by the applicant on the line below:

IPEA/US

PCT

CHAPTER II

### DEMAND

under Article 31 of the Patent Cooperation Treaty:

The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty

For International Preliminary Examining Authority use only

Identification of IPEA	Date of Receipt of DEMAND
------------------------	---------------------------

<b>Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION</b>		Applicant's or agent's file reference L0632.70016
International Application No. PCT/US2004/012110	International Filing Date (day/month/year) 20 April 2004 (20.04.2004)	(Earliest) Priority date (day/month/year) 23 April 2003 (23.04.2003)
Title of Invention X-RAY IMAGING TECHNIQUE		
<b>Box No. II APPLICANT(S)</b>		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) L-3 COMMUNICATIONS SECURITY AND DETECTION SYSTEMS CORPORATION 10E Commerce Way Woburn, Massachusetts 01801 United States of America		Telephone No.:
		Facsimile No.:
		Teleprinter No.:
State (that is, country) of nationality: US	State (that is, country) of residence: US	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) EILBERT, Richard F. 116 Lincoln Road Lincoln, Massachusetts 01773 United States of America		
State (that is, country) of nationality: US	State (that is, country) of residence: US	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) SIEVING, Alan R. 48 Harris Street Waltham, Massachusetts 02452-6105 United States of America		
State (that is, country) of nationality: US	State (that is, country) of residence: US	
<input type="checkbox"/> Further applicants are indicated on a continuation sheet.		

Form PCT/IPEA/401 (first sheet) ((January 2004))  
Express Mail Label No. EL960723102US

See Notes to the demand form

**Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE**

The following person is ☒ agent ☐ common representative

And ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.  
☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.  
☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Attorney, in addition to the agent(s)/common representative appointed earlier.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

WALSH, Edmund J.  
 Wolf, Greenfield & Sacks, P.C.  
 600 Atlantic Avenue  
 Boston, Massachusetts 02210  
 United States of America

Telephone No.:  
(617) 646-8000

Facsimile No.:  
(617) 646-8646

Teleprinter No.:

☐ **Address for Correspondence:** Mark this check box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments:\***

1. The applicant wishes the international preliminary examination to start on the basis of:

☐ the international application as originally filed

the description ☐ as originally filed  
☐ as amended under Article 34

the claims ☐ as originally filed  
☐ as amended under Article 19 (together with any accompanying statement)  
☐ as amended under Article 34

the drawings ☐ as originally filed  
☐ as amended under Article 34

2. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.

3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of the applicable time limit under Rule 69.1(d).

4. ☐ The applicant wishes the start of the international preliminary examination to start earlier than the expiration of the applicable time limit under Rule 69.1(d).

\* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

**Language for the purposes of international preliminary examination: . . . English**

- ☒ which is the language in which the international application was filed.  
☐ which is the language of a translation furnished for the purposes of international search.  
☐ which is the language of publication of the international application  
☐ which is the language of the translation to be furnished for the purposes of international preliminary examination.

**Box No. V ELECTION OF STATES**

The filing of this demand constitutes the election of all Contracting States which are designated and are bound by Chapter II of the PCT.

**Box No. VI CHECKLIST**

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- |    |                                                                       |   |       |        |
|----|-----------------------------------------------------------------------|---|-------|--------|
| 1. | translation of international application                              | : | _____ | sheets |
| 2. | amendments under Article 34                                           | : | _____ | sheets |
| 3. | copy (or, where required, translation) of amendments under Article 19 | : | _____ | sheets |
| 4. | copy (or, where required, translation) of statement under Article 19  | : | _____ | sheets |
| 5. | letter                                                                | : | 4     | sheets |
| 6. | other ( <i>specify</i> )                                              | : | _____ | sheets |

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Examining Authority use only

Received      not received

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

The demand is also accompanied by the item(s) marked below:

- |                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> fee calculation sheet<br>2. <input type="checkbox"/> separate signed power of attorney<br>3. <input type="checkbox"/> copy of general power of attorney; reference number, if any: | 4. <input type="checkbox"/> statement explaining lack of signature<br>5. <input type="checkbox"/> nucleotide and or amino acid sequence listing in computer readable form<br>6. <input checked="" type="checkbox"/> other ( <i>specify</i> ):<br>Transmittal letter<br>Postcard |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE**

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

  
 WALSH, Edmund J.

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1. Date of actual receipt of DEMAND: \_\_\_\_\_

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b): \_\_\_\_\_

- |                                                                                                                                                                                              |                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 3. <input type="checkbox"/> The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply.                            | <input type="checkbox"/> The applicant has been informed accordingly. |
| 4. <input type="checkbox"/> The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.                                   |                                                                       |
| 5. <input type="checkbox"/> Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.     |                                                                       |
| 6. <input type="checkbox"/> The date of receipt of the demand is AFTER the expiration of the time limit under Rule 54bis.1(a) and item 7 or 8 below, does not apply.                         |                                                                       |
| 7. <input type="checkbox"/> The date of receipt of the demand is WITHIN the time limit under Rule 54bis.1(a) as extended by virtue of Rule 80.5.                                             |                                                                       |
| 8. <input type="checkbox"/> Although the date of receipt of the demand is after the expiration of the time limit under Rule 54Bis.1(a), the delay in arrival is EXCUSED pursuant to Rule 82. |                                                                       |

For International Bureau use only

Demand received from IPEA on: \_\_\_\_\_

## PCT

## FEE CALCULATION SHEET

Annex to the Demand for international preliminary examination

For International Preliminary Examining Authority use only

International Application No. PCT/US2004/012110	<div style="border: 1px solid black; height: 40px; margin-bottom: 5px;"></div> Date stamp of the IPEA
Applicant's or agent's File reference: L0632.70016	
Applicant L-3 COMMUNICATIONS SECURITY AND DETECTION SYSTEMS CORPORATION	
Calculation of prescribed fees	
1. Preliminary examination fee .....	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">\$600.00 (USPTO was ISA)</div> <div style="border: 1px solid black; padding: 2px; margin-left: 5px;">P</div> </div>
2. Handling fee .....	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">\$173.00</div> <div style="border: 1px solid black; padding: 2px; margin-left: 5px;">H</div> </div>
3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box .....	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; text-align: center;">\$773.00</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">TOTAL</div>
Mode of Payment	
<div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> authorization to charge deposit account with the IPEA (see below)           </div> <div> <input type="checkbox"/> cash           </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> cheque           </div> <div> <input type="checkbox"/> revenue stamps           </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> postal money order           </div> <div> <input type="checkbox"/> coupons           </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> bank draft           </div> <div> <input type="checkbox"/> other (specify):           </div> </div>	
Deposit Account Authorization (this mode of payment may not be available at all IPEAs) The IPEA/US <input checked="" type="checkbox"/> is hereby authorized to charge the total fees indicated above to my deposit account. <input checked="" type="checkbox"/> (this check-box may be marked only if the conditions for deposit accounts of the IPEA so permit) is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.	
23/2825	<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <u>9/5/2005</u>            Date (day/month/year)         </div> <div>             WALSH, Edmund J.         </div> </div>
Form PCT/IPEA/401 (Annex) (July 1998; reprint January 2000)	

See notes to the fee calculation sheet

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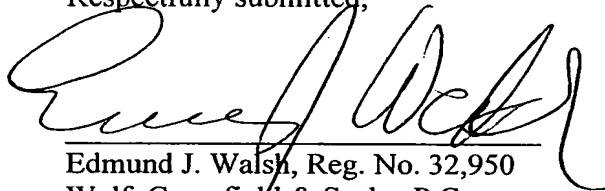
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AL.  
Title : X-RAY IMAGING TECHNIQUE  
Authorized Officer :

Mail Stop PCT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Transmitted herewith for filing is a Response to Written Opinion with Amendments  
Under PCT Article 34(2)(b).

If the enclosed papers are considered incomplete, the Mail Room and/or the  
Application Branch is respectfully requested to contact the undersigned collect at  
(617) 646-8000, Boston, Massachusetts.

Respectfully submitted,



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DOCKET NO.: L0632.70016  
DATE: 9 May 2005  
x09/05/05  
Express Mail Label No.: EL960723102US

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ET AL.  
Title : X-RAY IMAGING TECHNIQUE

Authorized Officer:

Mail Stop PCT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO WRITTEN OPINION  
AMENDMENT UNDER PCT ARTICLE 34(2)(b)**

In response to the Written Opinion mailed 08 February 2005 (08.02.2005), Applicant respectfully requests reconsideration of the above-identified application by the International Preliminary Examining Authority in view of the following remarks under PCT Article 34(2)(b).

**REMARKS**

In response to the Written Opinion, Applicant would like the Examiner to consider differences between the references and the claims in making the International Preliminary Examination report. Applicants draw attention to features in the claims not shown or suggested in the references.

The Examiner points to passages in the references that refer to pulse height analysis. However, these passages do not teach or suggest all the recited elements of the independent claims. For example:

Claim 1 recites

- d) a plurality of channels, each channel having:
  - i) an input connected to an output of a respective radiation detector, and

- ii) an output representative of a number of pulses produced by the respective radiation detector during an interval of time; and
- e) a data processor receiving as inputs the outputs of the plurality of channels, the data processor processing the inputs to determine characteristics of objects within the item.

An analysis based on pulse height does not teach or suggest processing to determine characteristics of objects based on number of pulses, as recited in the claim. Furthermore, the dependent claims add further distinguishing features. For example, claims 13-15 recite scintillating materials that further distinguish the claimed detectors based on construction. Claims, such as 20-21 further distinguish based on recited dimensions. Claims 30-32, 38-39 distinguish based on recited calibration circuitry or software. Timing of measurements is recited in claims such as 4, 35-37, 46-47; Claims 42-45 recite the display of an image based on characteristics derived from the output representative of a number of pulses; Claims 48 recites aggregation of detectors; Claim 52-54 recites aggregating detector outputs based on the height of the object under inspection – all of which further distinguishes over the references.

Claim 61 recites:

- d) a plurality of channels, each channel comprising means for making a plurality of counts of pulses produced by one of the plurality of means for producing, each of the counts representing a number of pulses with an amplitude in a predetermined range; and
- e) means for analyzing the counts of pulses to form a representation of the item.

An analysis based on pulse height does not teach or suggest making a count of pulses and analyzing the counts to form a representation of an item, as recited in the claim. Furthermore, the dependent claims add further distinguishing features. For example, claims 62-63 distinguish based on recited dimensions. Claim 66 distinguishes based on a recited a type of material. Claim 72 recites combining counts of pulses based on an estimated distance; Claims 74-75 recite a calibration means; Claim 76-77 recites a means for reducing the pulse rate; Claim 78 recites a tomographic reconstruction – all of which further distinguishes over the references.



Claim 79 recites:

- b) counting pulses with levels representative of a least three energy levels produced by the plurality of detectors;
- c) combining the counts of the pulses into a representation of the item;
- c) analyzing the representation of the item to determine properties of objects within the item based in part on the relative number of counts of each energy level.

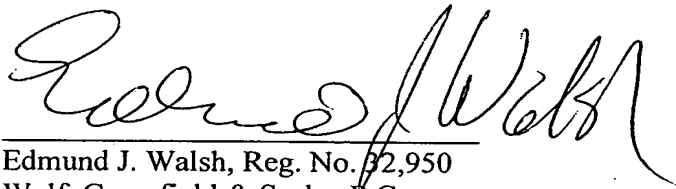
An analysis based on pulse height does not teach or suggest counting pulses, combining counts into a representation of an item and then analyzing the representation, as recited in the claim. Furthermore, the dependent claims add further distinguishing features. For example, claim 80 recites further aspects of the representation of the item formed by counting pulses.

Accordingly, the claims provide multiple features that distinguish over the cited references. A favorable International Preliminary Report on Patentability in response is requested.

~~4~~

If for any reason this response does not place the application in condition for issuing a favorable International Preliminary Examination Report as to all claims, Applicant requests issuance of a further Written Opinion and an opportunity to respond thereto prior to issuance of the International Preliminary Examination Report. Should there be insufficient time available for issuance of a further Written Opinion, Applicant requests the IPEA to initiate a telephone interview at Applicant's expense, and an opportunity to file a supplemental response to the previous Written Opinion by return fax, pursuant to PCT Article 34(2).

Respectfully submitted,



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